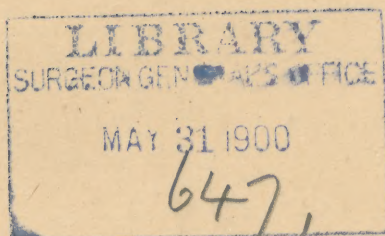


MILLER (W.D.)

Caries of the teeth x x x x x







## CARIES OF THE TEETH IN AN AFRICAN MANATEE (MANATUS SENEGALENSIS).

By W. D. MILLER, M.D., D.D.S., BERLIN.

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DURING the last ten years I have made various minor contributions to the question of caries of the teeth of animals, and my observations, together with those of Kitt, von Kerschensteiner, and others, have established the fact that the appearance of caries of the teeth in animals is by no means an occurrence of great rarity.

The result of these various investigations has shown that especially herbivorous and omnivorous animals, and among these again mostly the domestic mammals, are subject to dental caries: dogs that are fed from the table, horses, etc. Monkeys also quite frequently suffer from caries.

On this occasion I do not, however, intend to treat of the question in general, but only to call attention to a case of dental caries in an order of the mammalia, in which, as far as I know, caries of the teeth has never before been observed.

In the collection of the Berlin Dental Institute there are two skulls of *Manatus Senegalensis*, in one of which the majority of the teeth are more or less decayed. The Manatus is a species of the Sirenia (sea-cows), which belong to the suborder of the cetaceans, styled *Natantia herbivora*, or herbivorous cetaceans, in contradistinction to *Natantia carnivora*, or carnivorous cetaceans. The species in question, *Manatus Senegalensis*, inhabits the west coast of tropical Africa, lives in the ocean and in the mouths of rivers, feeds upon sea-weeds and other water plants.

The dental formula of the manatee of Senegal is  $i \frac{1}{1}, m \frac{10}{10}$ .

The incisor is a deciduous tooth, and is lost at an early age. The molars develop in succession from before backward. The crowns of the molars are approximately cube-shaped; they have a broad, flattened approximal surface, and become somewhat narrower toward the neck. Their shape, therefore, favors the retention of particles of food, particularly in the interstices of the necks. Nevertheless, I was very much surprised to find cavities, particularly in such numbers, in the teeth of a sea mammal.

It would be very natural to suppose that an animal whose mouth and teeth are almost constantly washed with water, especially with salt water, could never suffer from caries of the teeth. It seems, however,

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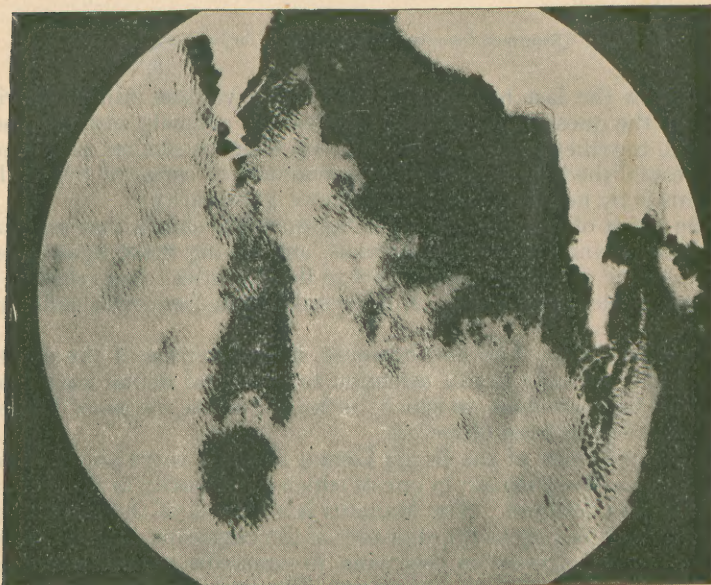
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to be an established fact that the manatee passes much of his time with his snout out of the water. Some observers report that he often crawls out of the water to feed upon plants on the shore. This statement is disputed by others. We have, however, the best authority for the statement that he "eats so much that his stomach and intestinal tube are completely filled with food, and then, when he is satiated, often lies down in shallows, so that his snout extends out of the water, . . . and sleeps away several hours in that position." (Brehm's "Animal Life".) During this time the fermentation of the vegetable matter lodged between the teeth might well take place.

FIG. 1.



I laid one of the carious teeth in water for twenty-four hours in order to soften the carious dentine, which had become exceedingly dry and hard. After this time I scraped out a small piece with a spoon-shaped excavator, and prepared sections of it on the freezing microtome, which were then colored after the Gram-Günther method. They showed under the microscope the same appearance with which we are familiar from the study of caries of human teeth. (See Fig. 1.)

On account of the extreme dryness of the dentine, I could not succeed in obtaining specimens well adapted for examination with high power. It could, however, be readily determined that the caries was due neither to a mixed infection, as in human teeth, nor to an infection with a pleomorphic species of bacteria. Some of the forms present are represented in Fig. 2.

FIG. 2.

